

# Acids and Alkalís

1 The pH scale shows how acidic or alkaline substances are.

a) What range of values does pH take? ..... [1]

b) What term is used to describe a substance with a pH of 7? ..... [1]

c) Caustic soda has a pH of around 13. Place a cross in the box that best describes caustic soda.

☐ strong acid

☐ strong alkali

☐ weak acid

☐ weak alkali

[1]

[Total 3 marks]

2 Bleach has a pH of around 12.

Complete the table to show what colour it would turn the following indicators.

| Indicator           | Colour |
|---------------------|--------|
| Litmus paper        | .....  |
| Phenolphthalein     | .....  |
| Universal indicator | purple |
| Methyl orange       | .....  |

[Total 3 marks]

3 A student has a test tube containing some acid. The student adds a few drops of universal indicator to the acid and it turns red. The student then gradually adds some alkali to the test tube.

a) What type of ions in the acid cause the indicator to become red?

..... [1]

b) What type of reaction takes place between the acid and the alkali?

..... [1]

c) The student stops adding alkali when all of the acid has reacted.

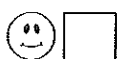
How will the student know when all of the acid has reacted?

..... [1]

[Total 3 marks]

Score:

9



## Reactions of Acids

- 1 Dilute acids can react with metals and with metal oxides.  
Complete the word equations for the reactions below.

a) sulfuric acid + magnesium oxide  $\rightarrow$  ..... + ..... [1]

b) hydrochloric acid + aluminium  $\rightarrow$  ..... + ..... [1]  
[Total 2 marks]

- 2 A student is investigating the reactions of acids.

a) The student reacts nitric acid with copper oxide. Write a word equation for the reaction.

..... [1]

b) The student then adds zinc to a test tube of hydrochloric acid.  
Write a chemical equation for the reaction.

..... [2]

c) The student then reacts sodium carbonate with an acid. Sodium sulfate is formed.  
Name the acid that was used.

..... [1]  
[Total 4 marks]

- 3 When a sample of calcium carbonate powder is placed in a test tube containing nitric acid, bubbles of gas are given off.

a) Name the gas evolved during the reaction.

..... [1]

b) Write a chemical equation for the reaction.

..... [2]

c) Some calcium carbonate powder is left over.

Suggest an appropriate acid that could be added to it to make calcium chloride.

..... [1]  
[Total 4 marks]

### Exam Practice Tip

This topic is quite heavy on the equation front. Make sure you know what's produced when dilute acids react with metals, metal oxides or metal carbonates. For top marks you need to be super slick at balancing equations too — and there's just no substitute for practice where that's concerned.

Score

10

